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ABSTRACT

Students in a large human development course (n=306) took two measures of academic causal attributions: a general measure of perceived contributors to a cross-section of course outcomes and a specific measure of perceived contributors to performance on the course examinations. Results indicate that students perceive personal effort as the primary contributor to a cross-section of course outcomes. Teacher input, personal ability, and luck followed in rank order as perceived contributors. In contrast, student evaluations of potential contributors to their exam scores yielded higher ratings for teacher input and student ability than for student effort. The examination attributional dimensions more strongly correlated with examination scores that the general attributional dimensions did with a variety of course performance measures. (Contains 3 tables and 11 references.) (SLD)

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Running Head: ACADEMIC ATTRIBUTIONS OF COLLEGE STUDENTS

# Academic Causal Attributions and Course Outcomes for College Students

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Abstract

Students in a large human development course took two measures of academic causal attributions: a general measure of perceived contributors to a cross-section of course outcomes and a specific measure of perceived contributors to performance on the course exams. Results indicated that students perceived personal effort as the primary contributor to a cross-section of course outcomes. Teacher input, personal ability, and luck followed in rank order as perceived contributors. In contrast, student evaluations of potential contributors to their exam scores yielded higher ratings for teacher input and student ability than for student effort. The exam attributional dimensions more strongly correlated with exam scores than the general attributional dimensions did with a variety of course performance measures.

## Academic Causal Attributions and Course Outcomes for College Students

Attribution theory has spawned considerable research on personal explanations for success and failure experiences in a variety of areas, including academic performance at the college level. Anyone who has taught at this level recognizes that student explanations for performance reflect a variety of causal attributions. In addition, instructor explanations for student performance are equally revealing of causal perspectives. Some research indicates that both faculty and students are inclined to take credit for classroom successes but disavow responsibility for student failures (McAllister, 1996).

Classifications for causal attributions traditionally include the internal causes of ability and effort and the external causes of task difficulty and luck, although luck is less frequently assessed than the other causal categories (Weiner, 1979; 1980; 1985). Yan and Gaier (1994) have found considerable cross-cultural consistency in the way college students rate these contributors to academic successes and failures. American, Chinese, Japanese, Korean, and Southeast-Asian students all attributed their successes and failures first to personal effort and then to ability, task difficulty, and luck, in that order.

The high ranking of effort across ethnic groups reinforces the common notion that effort attributions, both for success and failure experiences, provide an adaptive framework for future success. Because students have direct control over personal effort, even a failure experience need not undermine future successes. Attributing a failure experience to insufficient effort still leaves the student with some sense of control over future outcomes. Students who deal with failure by acknowledging that they must work harder or differently presumably have a better chance for future success than those who attribute failure to lack of ability, task difficulty, or bad luck. Unfortunately, students may be more inclined to attribute successes than failures to personal actions. For example, El-Hindi and Childers (1996) found that students attributed academic

successes to notetaking and attending class, but did not attribute academic failures to deficiencies in these actions. Yan and Gaier (1994) likewise reported that American students emphasized effort more in accounting for success than lack of effort in accounting for failure.

What factors contribute to this emphasis on effort as an explanation for academic outcomes, especially successful outcomes? Pascarella, Edison, Hagedorn, Nora, and Terezini (1996) identified a number of factors linked to internal attributions (effort and ability) at the end of the first year in college. These factors included both personal factors (such as credit hours taken, hours studied per week, hours worked per week, and participation in intercollegiate athletics) and instructional variables (such as course organization, instructional clarity, and instructor support). However, the instructional variables proved more predictive of end-of-the-year internal attributions for academic success than did the personal factors. For example, the level of course organization would be more predictive of student internal attributions for academic outcomes than would the number of credit hours a student had taken.

Beyond their contributions to students' internal attributions, instructor variables may warrant consideration as a separate attributional domain. In other words, how students perceive instructor contributions to their academic successes and failures may affect their subsequent performance. Despite the potential importance of this domain, the major academic attributional scales, such as the Multidimensional-Multiattribution Causality Scale (Lefcourt, von Baeyer, Ware, & Cox, 1979) and the Academic Attributional Style Questionnaire (Peterson et al., 1982), do not adequately represent the instructor category. The closest match to this category is the context dimension in the achievement portion of the Multidimensional-Multiattribution Causality Scale (MMCS). However, the context dimension of the MMCS mainly targets teacher standards and does not include such issues as teacher preparation for class, clarity of instructions for course activities, and amount of assistance provided students. Nonetheless, these are the kinds of

instructional issues students often invoke in accounting for their performance. For example, Wyatt and Medway (1984) reported that undergraduate psychology students attributed exam outcome more to proctors who assisted them than to their own actions.

The minimal research on causal attributions related to teacher actions prompted the following research questions: (a) What weighting do college students assign to teacher input compared to personal effort, personal ability, and luck as explanations for a cross-section of success and failure experiences in college courses? (b) How highly do they evaluate effort, ability, and teacher input as potential contributors to actual exam performance? (c) Do attribution measures and ratings of exam contributors differentially predict performance measures in college courses? (d) Do high- and low-performing students explain their course performance differently?

## Method

### *Participants*

Students in five sections of a large undergraduate human development course participated in various phases of the study ($N = 306$). The sample was 79% females and 21% males, with 76% of the students being sophomores and juniors. Students earned a small amount of credit for participating, but equivalent credit was available for non-research activities. One hundred percent of the students participated in some phases of the study. To permit subgroup comparisons on perceived contributors to the exams, we also identified high performers (students earning an A on selected performance measures) and low performers (students making a D or F on the same performance measures).

### *Course Description*

Developmental themes provided the framework for five course units: physical, cognitive, psychological, social, and character development. The five class sessions in each unit followed a standard sequence: session one involved viewing and discussing a videotape related to the unit;

sessions two and three consisted of an instructor overview of pivotal issues in the unit; session four began with a brief essay quiz related to selected issues in the reading materials and then continued with the instructor overview; and session five included a multiple-choice exam over the unit and feedback to students regarding their essay quiz and multiple-choice exam performance. Students signed a class roster each day they attended but received no credit for attendance. Close to 100% of the students attended on quiz and exam days.

The reading materials for the course consisted of a custom-designed text, *Developmental Issues in Teaching* (Rothstein, 1997), and a set of journal articles compiled by the instructional supervisor. In addition, students obtained a detailed study guide (100+ pages) that included questions over the readings, the videotapes, and the instructor overviews. Questions in the study guide followed the same sequence of issues as addressed in the readings, videotapes, and instructor overviews.

*Course Performance Measures*

The study targeted five course performance measures: essay quiz scores, unit exam scores, final exam scores, project scores, and total credit (which subsumed all of the other measures). Typically, graduate teaching assistants (GTAs) gave students performance feedback either the same day as an activity (multiple-choice exams) or on the day following the activity (essay quizzes). Feedback on projects usually was given within a week after the projects were submitted.

*Essay quizzes.* At the beginning of the next-to-last class session in each unit, students provided written answers to one of two instructor-selected questions from the readings section of the study guide. Students could take up to 5 minutes to respond to the question they chose, but they were not permitted to use their notes while responding. Graduate teaching assistants rated student responses on a 0 to 5 basis: 0 = *no answer or totally inaccurate answer* and 5 = *complete*

*and accurate answer*. Inter-rater reliabilities for multiple raters of quizzes across different sections of the course have consistently been above .9. Credit for the quizzes amounted to approximately 6% of the course credit.

*Multiple-choice exams.* Students took a 40-item multiple-choice exam with four possible choices per item at the end of each unit. A 75-item multiple-choice final exam covering issues from all five units concluded the course. The instructional supervisor initially developed all the exam items, which GTAs later took and edited for clarity of wording. A majority of the items, as determined by the instructional team, required higher order reasoning that involved synthesis of course information and evaluation of possible conclusions from that information. The combined scores on the unit and final exams approximated 70% of the course credit.

*Course project.* Each student chose a project topic from a master list of 50 research questions and prepared a 5-7 double-spaced paper dealing with that topic. Students collected information regarding their question mainly from professional journals and used explicit instructor guidelines in preparing their projects. The guidelines primarily emphasized supportive evidence for the project's conclusion, documentation of sources, quality of sources, and variety of sources. Scores could range from 0 to 50 points, representing about 13% of the possible course credit. Inter-rater agreements for GTA ratings of the projects in past semesters typically have been above .8.

*Attributional Measures*

Two types of instruments were constructed to assess students' perceptions of potential contributors to academic performance: (a) a general measure of students' explanations for a cross-section of hypothetical success and failure experiences in college courses and (b) student ratings of factors potentially affecting their actual exam performance in the course. In contrast to

established attributional measures, both instruments included instructor input among factors potentially affecting performance.

*General attribution measure.* Students ($n$ = 98) in two sections of the course took the College Academic Attribution Scale (CAAS) at the outset of the course. This instrument describes 15 positive-negative pairs of academic outcomes (e.g., I make a high grade on an essay test, I make a low grade on an essay test), with each member of a pair randomly placed within the scale. The outcomes relate to a variety of student products (e.g., essay tests, multiple-choice tests, course projects, homework, group assignments) and student classroom events (e.g., class presentation, explanation of a concept, answer to a teacher question, summary of the day's discussion).

Each item first identified an outcome (e.g., I get a poor grade on a course project) and then posed four possible explanations for that outcome. One explanation represented student effort (I didn't work hard on the project), a second targeted student ability (I am poor at doing projects), a third specified teacher input (the project instructions were unclear), and a fourth underscored chance or luck (I was unlucky). Students rated how frequently (1 = *seldom*, 2 = *sometimes*, 3 = *often*) each explanation applied to a particular outcome. Students obtained separate attributions scores for items describing positive and negative outcomes. Cronbach's alphas for the four attributional dimensions across the combined positive and negative outcomes were .88 for effort, .64 for ability, .80 for teacher input, and .91 for luck. The composite internal consistency was .88.

*Ratings of exam contributors.* Following feedback regarding their scores on each unit exam (occurring the day of the exam) and teacher explanation of the four most missed items (occurring the next class session), students rated factors that might have affected their exam performance. The 15-item rating scale included three dimensions: (a) student effort (e.g., amount

of time I spent studying for the exam, my level of reading in this unit, my level of class attendance in this unit), (b) student ability (my ability to take this type of exam, my ability to master the type of subject matter addressed in this unit), and (c) teacher input (e.g., level of clarity in instructor presentations in this unit, degree of match between instructor presentations and exam content, clarity of wording on the exam). Six items reflected student effort, two student ability, and six teacher input. One item (match between what I studied and content of the exam) that potentially overlapped categories was treated as a separate variable in the data analysis.

Each potential contributor to exam performance was rated on a 1 to 3 basis: 1 = *low*, 2 = *medium*, and 3 = *high*. For example, a 1 rating for exam clarity meant that the student regarded the preceding exam as low in clarity, whereas a 3 rating indicated that the student perceived the exam as high in clarity. Cronbach's alphas for the three rating dimensions were low to marginal (.37 to .75) across exam ratings, with average internal consistency higher for ability (.61) and teacher input (.64) ratings than for personal effort ratings (.42).

## Results

This section presents findings in the following sequence: (a) ranking of generalized causal attributions for academic outcomes, (b) ratings of potential contributors to specific exam performance, (c) relationships of generalized attributions and specific exam ratings to course performance measures, and (d) distinctions between attributional and exam rating patterns of high- and low-performing students. Data analysis included descriptive statistics, correlations, *t* tests, and mixed designs.

### *Attributional Rankings of Total Sample*

Mean scores for both the positive and negative items within the CAAS yielded the same rank order for the attributional categories: (1) effort, (2) teacher, (3) ability, and (4) luck. The effort means (positive = 39.96, negative = 29.29) ranked significantly higher ($p < .005$) than

companion means for the other attributional categories, whereas the luck means (positive = 24.32, negative = 21.28) ranked significantly lower ($p < .005$) than all of the other dimension means. The teacher means (positive = 37.26, negative = 26.69) also ranked significantly higher ($p < .005$) than the ability means (positive = 34.25, negative 24.66). Across attributional categories, students assigned significantly ($p < .001$) stronger attributional ratings for positive (mean = 33.95) than negative outcomes (mean = 25.48).

*Exam Contributor Ratings for Total Sample*

Ratings for exam contributors (student effort, student ability, and teacher input) were highly consistent across exams. The average exam ratings on the 1 to 3 scale were 2.09 for student effort, 2.35 for student ability, and 2.38 for teacher input. The average teacher input and student ability ratings did not differ significantly, although both were significantly ($p < .001$) higher than the student effort ratings. Thus, on the average, students assigned a medium rating to their effort and medium to high ratings to their ability and teacher input as potential contributors to exam performance.

*Relationship Between Attributional Ratings and Performance Measures*

The positive dimensions on the academic attributions scale correlated significantly with several performance measures (see Table 1). For example, both effort and luck correlated significantly with four of five performance measures. All four of the positive CAAS scales significantly correlated with composite exam scores. In contrast, few of the attributional dimensions for the negative items correlated significantly with performance measures. Nonetheless, ability explanations for negative outcomes significantly and negatively correlated ($p < .01$) with both unit exam scores and total course credit. Thus, the more students attributed failure to lack of ability, the poorer their course performance.

Exam ratings consistently and significantly correlated with unit exam performance (see

Table 2). However, the correlations involving effort evaluations proved weaker than those involving ability or teacher input evaluations. Furthermore, the correlations between ability ratings and exam performance tended to be somewhat higher than the correlations between teacher input ratings and exam performance. The correlations between composite exam ratings and composite unit exam scores were .14 (ns) for effort, .41 ($p < .001$) for ability, and .34 for teacher input ($p < .001$).

As mentioned earlier, one exam rating item ("match between what I studied and content of the exam") was not included in the exam rating scales because of possible overlap of categories. The perceived match-mismatch could be a function of either student or teacher action. However, because this item represented a potentially important perceptual link to exam performance, the item was scored and analyzed as a separate variable. Its correlation with composite unit exam scores proved surprisingly strong ($r = .48$, $p < .001$). The correlations between this item and the exam rating categories painted a revealing picture of how students saw the responsibility for the match between what they studied and the content of the exams: .14 for effort (ns), .44 for ability ($p < .001$), and .66 for teacher input ($p < .001$). Although this correlational pattern implicates student judgment in the match between what one studied and the content of the exam, the pattern more strongly points to teacher judgment as responsible for the match/mismatch.

*Attributional Scores for High- and Low-Performing Students*

High and low performers on total course credit did not differ on any attributional dimension for the CAAS. The rank order for the four causal dimensions was the same for both groups. Consistent with the pattern for the total sample, both performance groups rated effort highest and luck lowest. The combined performance groups' assigned equivalent ratings to ability and teacher input.

Table 3 shows that the exam ratings for high and low performers on the exams differed significantly for most exams and explanatory categories. However, comparisons of composite exam rating means yielded no difference between the high and low performers on perceived effort (ns) but significant differences on both perceived ability ($p < .001$) and teacher input ($p < .01$). High and low performers' composite means on the exam rating categories were the following: effort (high mean = 2.12 and low mean = 2.08), ability (high mean = 2.59 and low mean = 2.15), and teacher input (high mean = 2.51 and low mean = 2.30). Exam group comparisons also indicated that high-performing students rated the match between what they studied and the content of the exam significantly higher ($p < .001$) than did low-performing students, with the groups' mean ratings on this item being 2.66 and 2.15 respectively.

## Discussion

Overall, students perceived their own effort as the principal explanation for a cross-section of hypothetical positive and negative course outcomes. Not surprisingly, they were least likely to attribute outcomes to luck. Personal effort, teacher input, and student ability all clearly ranked ahead of luck as explanations for both positive and negative academic outcomes. Although the rankings across the attributional scales were the same, positive outcomes yielded stronger attributional ratings than did the negative outcomes. Thus, students appeared to have stronger convictions about what accounts for positive than negative events.

The two highest ranking attributions, student effort and teacher input, probably represent the most productive explanations for academic outcomes. Realistically, both are likely to affect academic outcomes and both are modifiable. Students have direct control over their effort and teachers have direct control over their input. Plus, student feedback to teachers may have some indirect influence over teacher input. Examining the extent and nature of one's efforts after a negative outcome seems especially adaptive. A good first question to ask oneself following a

poor result is "What can I do differently to achieve better results next time?" In addition, if the student believes that the teacher's instructional and assessment procedures contributed to the poor result, complaining to the teacher may influence the teacher's instructional style and assessment procedures. Thus, seeing personal effort and teacher input as major contributors to academic performance seems to be a realistic and adaptive approach for dealing with classroom successes and failures.

Ratings of potential contributors to exam performance yielded a causal pattern quite different from that obtained for the more general attributional scale. The exam ratings showed that students perceived teacher input and their own ability more positively than their own effort in preparing for the exam. This pattern is quite different from student input frequently heard following poor test performance. When students express concern to us about a low test grade, they often assert that they studied hard and did everything asked in preparing for the exam. A common student explanation for poor performance is that the test was unclear and unrepresentative of course content.

Although the positive scales (especially effort and luck) of the academic attributions measure correlated significantly with most performance measures, exam ratings evidenced stronger relationships with performance measures than did the CAAS attributional dimensions. Nonetheless, the three exam ratings dimensions did not yield equivalent correlations with exam performance. For all exams, effort ratings correlated less strongly with exam performance than did ability and teacher ratings. For the latter variables, student ability ratings tended to be correlated more strongly with exam scores than did teacher input ratings. Thus, how students evaluated their own actions proved less predictive of exam performance than how they regarded their ability and teacher input, dimensions that would be less controllable by students than would their personal effort.

We expected the linkage of attributional and exam rating to course performance to be most definitive in the comparisons of high and low performers. Thus, we first contrasted the attributional scores for students who earned an A on total course credit with those who earned a D or F. Although the raw scores means generally conformed to expected attributional distinctions between and high and low performers, none of these group differences proved statistically significant. Thus, high and low performers on total course credit did not differ in their causal attributions for academic outcomes.

In contrast, high and low performers on the unit exams differed significantly on their ratings of personal ability and teacher input. High performers manifested greater self-efficacy with respect to their ability to master the course content and do well on multiple-choice exams. They also perceived the teacher as more effective in managing instructional and assessment procedures related to the unit exam. Thus, the high performers appeared to have greater confidence in their ability to do well on the exams and a higher regard for the teacher's contribution to their exam preparation than did the low performers. Although not perceiving themselves as working harder in preparing for the exams, high performers may have been more efficient than the low performers in capitalizing on teacher input in their exam preparation.

The findings of this study point to several possible conclusions. Perceived teacher input is an important correlate of academic outcomes, particularly examination performance. Students see their own effort as the most important contributor to hypothetical outcomes, but rate their ability and teacher input more highly than personal effort as possible contributors to exam scores. Students report stronger beliefs about what contributes to positive academic outcomes than negative outcomes. Similarly, attributions for positive academic outcomes better predict performance measures than do attributions for negative outcomes. Ratings of student ability and teacher input both predict exam performance better than do ratings of student effort. The

perceived match between what one studied and exam content is one of the best single predictors of exam performance. The perception of match is more closely linked to students' ratings of teacher input than ratings of their own effort or ability.

A general conclusion from the study is that causal attributions for course outcomes at the college level have some relationship to performance, especially when the attributions and performance measures target a specific domain. Students are more likely to embrace personal effort as a prime contributor to hypothetical successes and failures, but give greater weight to personal ability and teacher actions in accounting for actual success or failure on a specific academic task. Although some attributional dimensions are consistently related to performance measures, these relationships tend to be weak to moderate. Obviously, many other variables besides perceived causality for academic outcomes also affect academic performance measures.

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Table 1

*Correlations Between CAAS Dimensions and Performance Outcomes (n = 98)*

| | Performance outcomes | | | | |
|---|---|---|---|---|---|
| | Quizzes | Project | Unit exams | Final exam | Total |
| Positive scales | | | | | |
| Effort | .10 | .24* | .37** | .26* | .34* |
| Ability | .02 | .06 | .20* | .20* | .19 |
| Teacher | .05 | .40* | .09 | .23* | .19 |
| Luck | -.05 | -.21* | -.32* | -.24* | -.29* |
| Negative scales | | | | | |
| Effort | -.20* | .03 | .03 | -.06 | -.02 |
| Ability | .02 | -.12 | -.24* | -.19 | -.21* |
| Teacher | .06 | .13 | .07 | .12 | .11 |
| Luck | .09 | -.01 | -.08 | .01 | -.03 |

*$p < .01$. **$p < .001$.

Table 2

*Correlations Between Exam Ratings and Exam Performance*

| | Unit exam scores | | | | |
|---|---|---|---|---|---|
| Rating scales | Exam A | Exam B | Exam C | Exam D | Exam E |
| Effort | .07 | .26** | .25** | .14* | .24** |
| Ability | .37** | .39** | .36** | .31** | .43** |
| Teacher | .29** | .43** | .30** | .34** | .26** |

*$p < .01$. **$p < .001$.

Table 3

*Exam Rating Means for High and Low Performers on Unit Exams*

| | Mean effort ratings per exam | | | | |
|---|---|---|---|---|---|
| Performance level | Exam A | Exam B | Exam C | Exam D | Exam E |
| High performers | 2.08 (107)[a] | 2.12 (84) | 2.12 (90) | 2.13 (77) | 2.11 (70) |
| Low performers | 2.02 (41) | 1.92 (46) | 1.99 (38) | 2.07 (39) | 1.90 (76) |
| | Mean ability ratings per exam | | | | |
| High performers | 2.57 (107) | 2.59 (84) | 2.53 (90) | 2.49 (77) | 2.49 (70) |
| Low performers | 2.10 (41) | 2.01 (46) | 2.05 (38) | 2.14 (39) | 1.94 (76) |
| | Mean teacher ratings per exam | | | | |
| High performers | 2.56 (107) | 2.55 (84) | 2.51 (90) | 2.51 (77) | 2.40 (70) |
| Low performers | 2.28 (41) | 2.06 (46) | 2.22 (38) | 2.18 (39) | 2.12 (74) |

*Note.* Independent samples *t* tests for the high-low comparisons in the various cells of the table showed that all comparisons except the effort dimension for exams A and D yielded significant differences (most at .001 level).

[a]Numbers in parentheses following means represent *n*s for the various cells in the table.

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